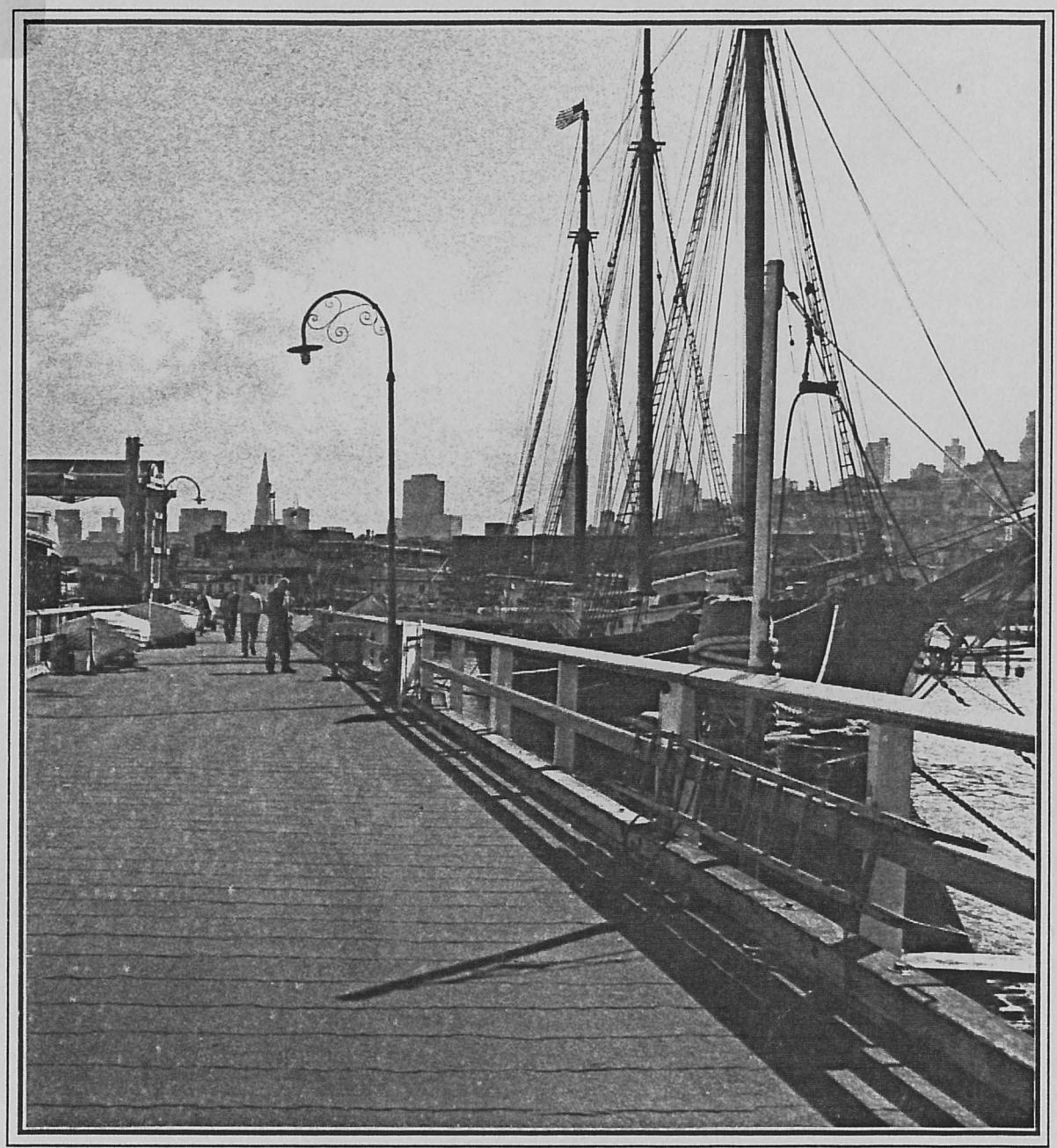

Hyde Street Pier Concept Study

National Maritime Museum
Golden Gate National Recreation Area

San Francisco, California

1988

HYDE STREET PIER CONCEPT STUDY

National Maritime Museum
Golden Gate National Recreation Area
National Park Service

San Francisco California

This study was prepared to assist the National Park Service in planning sessions concerning the Northern Waterfront Area of San Francisco. The study presents a concept for the berthing of the historic ships of the National Maritime Museum at Hyde Street Pier. It does not at this time represent an official National Park Service approved plan.

Prepared by

Architectural Resources Group
Architects and Planners
San Francisco, California

February 1988

ACKNOWLEDGEMENTS

This report was prepared by the Architectural Resources Group in cooperation with the staff of the National Maritime Museum (NMM), Tri-Coastal Marine who is preparing, under separate contract, a fleet plan for NMM, and Ace Pacific Company, who provided survey and structural condition data on the existing pier. Special appreciation is extended to NMM staff member Steve Haller for his assistance in writing the section on the historic fleet.

Due to the work being undertaken by the Port of San Francisco on its proposal to develop a new pier at Hyde Street for the fishing industry, additional cooperation was obtained from the Port Authority's staff and its consultants Carol M. Brown, Sausalito, California and Ripley Associates, Architects and Planners, San Francisco, California.

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INTRODUCTION

PLANNING HISTORY

References to developing Hyde Street Pier for berthing the National Maritime Museum's (NMM) collection of historic ships have been included in Golden Gate National Recreation Area (GGNRA) documents since the creation of the park by the federal government in 1972. The General Management Plan makes note of the "desirability of continued ship mooring in the Hyde Street pier area . . . . As many ship maintenance functions as possible will be incorporated into the design of the (new) structure, with maximum exposure to visitor viewing." And further "To visually emphasize pedestrian access between all of the ships, the existing waterfront promenade will be made more prominent with new seating areas, street furniture, and paving materials that contribute to the maritime setting."

Hyde Street Pier and the historic fleet form a significant part of the discussion found in the draft *1986 Interpretive Prospectus* prepared by the Division of Interpretive Planning, Harpers Ferry Center. Of note is the following observation:

> Hyde Street Pier is the gallery for the display and interpretation of the National Maritime Museum's fleet of historic ships. Alma, C.A. Thayer, Eppleton Hall, Eureka, and Hercules are now moored at Hyde Street Pier. Balclutha, moored at the Fisherman's Wharf Alcatraz Pier, should join them as soon as possible. Wapama is moored at Sausalito.
>
> Together, the historic ships are an internationally significant collection representing some of the major vessel types that would have been seen in San Francisco Bay during the decades before and after 1900. Individually, each is a significant historic structure in its own right.
>
> San Francisco Bay provides the appropriate background for these ships. Hyde Street Pier provides the foreground, providing both viewing platform and access to the ships. To the maximum extent possible, all other functions must be subordinate to these two. Vessel preservation/maintenance is, of course, the most essential function at Hyde Street Pier, and two of the primary tasks are to ensure that preservation/maintenance does not interfere with visitor access and interpretation, and that the preservation function itself is adequately interpreted. (p. 37)

In addition to the pier being discussed in concept, the existing Hyde Street Pier has been itself the subject of direct analysis. As early as 1972 and continuing to 1986, studies have been made of its structural condition and recommendations made for repairs. Some work has been undertaken, but deterioration continues.

As part of determining the future of the pier, the current study was undertaken to develop a concept plan for berthing the historic fleet at a new Hyde Street Pier.

PROJECT GOALS

The overall goal of the study can be simply stated: Develop a plan which will accommodate the facilities necessary for berthing and preserving the historic fleet, to allow for the implementation of a focussed interpretive program, and to meet the needs of visitors and staff. First and foremost was the concern for the welfare of the historic vessels and priority was assigned to the preservation needs of the ships. With this priority firmly in mind, the pier and its facilities were thought of as acting mainly to serve and provide access to the ships, but not entirely. There were other minor functions performed by

the pier which were not directly related to the ships themselves—the exhibits of maritime artifacts for example. Primary consideration was given to fulfilling the following major objectives:

- Berthing all seven historic ships at the pier.
- Providing adequate physical facilities for the preservation of the vessels, including a repair berth.
- Providing for the interpretation of the fleet through site planning and presentation of the vessels, and adequate facilities for program implementation.
- Minimizing the length and size of the pier and respecting the 25 foot height limit for this area.
- Providing adequate physical facilities and access for visitors, staff, and volunteers.
- Interpreting, preserving, displaying, and reconstructing historic small craft.

Several constraints presented themselves during the design process and were taken into consideration in the concept plan. External factors imposed by the Port of San Francisco's (Port) plans for a new Hyde Street pier facility for the fishing industry and the NMM's policy of minimizing encroachment into Aquatic Park included: access issues for moving the EUREKA (and possibly WAPAMA) in and out of her berth to the east; vehicular and pedestrian access, and conflicts between the two; architectural and urban design issues raised by the size and configuration of the Port's proposed fish handling facilities; adequate space for berthing the fleet and providing necessary maintenance facilities; maximizing distances between the proposed pier and the "area of interest" of the swimming and rowing clubs; maintaining views of the ships and the Bay from various vantage points. These concerns were taken into consideration and balanced against the project's overall goals and objectives.

In addition to the specifics of the immediate project, the design process was conducted within the context of what was set forth as "The Vision" in the draft *1986 Interpretive Prospectus* (pp. 1-2). This document was concerned with the entire program of the NMM, not just the historic fleet and Hyde Street Pier, and it is worth repeating here just what was envisioned for the museum.

> The early vision was of "Aquatic Park basin transformed...concentrating there the story of the city's great maritime past, telling the story of "San Francisco, the port that inspired the building of the Yankee clipper ships, that supported the magnificent 'downeast' Cape Horners until the turn of the century, that sent whaling ships to the Arctic, sealing vessels to the South Seas, and which, in the Salmon packing fleet, had the last great gathering of sailing ships on the face of the earth."
>
> The vision for today is much broader, and more than an extravaganza of the history of San Francisco and the days of sail. As the museum entered the National Park System it was redefined. The vision of today is to preserve the maritime history of the Pacific Coast. That history is the romance of sail, and a continuum from PreColumbian time to the present. It includes the ships, small boats, collections of seaman's arts and crafts, fine arts, ship plans, nautical charts, ships' journals and logs, and the myriad of objects, documents, and ephemera left in the wake of history.
>
> The fulfillment of today's vision requires new approaches to preservation and communications, new and stronger ties with the community, and stronger public participation. The goal is to bring together a larger community that can support the new vision and take pride in it.

The term preservation in this context does not mean merely keeping objects for their own sake. Rather the National Park Service cares for selected specimens—vital "documents" in three dimensions—which speak to the work of our forebear's hands, and of the tools with which they built in order to exist and prosper on the Western frontier. Caring requires sensitive treatment of the vessels and just as on-going maintenance and periodic haul-outs are a necessity when they were in actual operation, the key to long

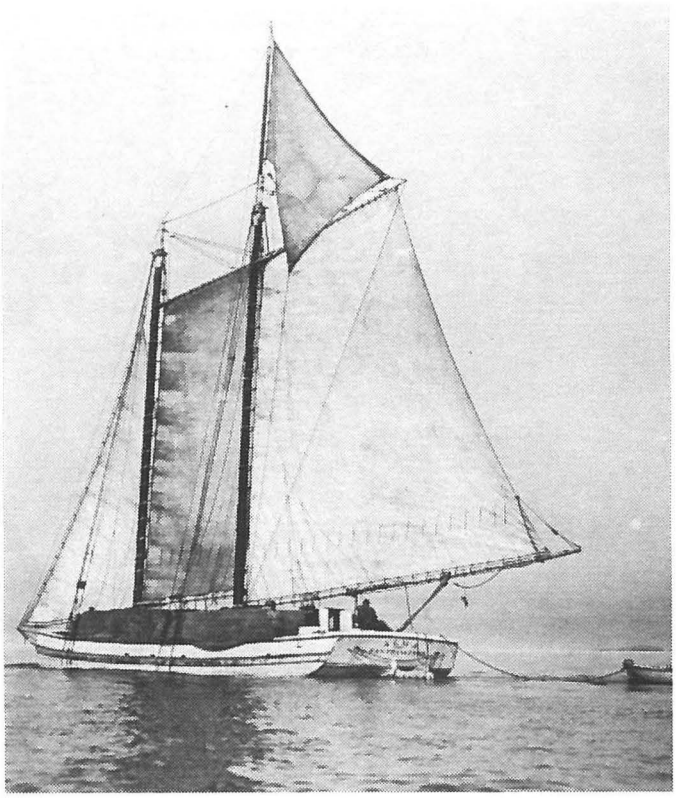
term survival for these vessels is a high level of daily maintenance and careful inspection of the condition of all structural elements. Areas of deterioration must be identified and replaced in a timely fashion. This is specialized work and the use of traditional skills, craftsmanship, and techniques is still the best approach to preservation. Maintenance activities will be an integral part of the Museum's interpretive program and will complement the presentation of the vessels.

MUSEUM HISTORY

The collection of floating vessels at the National Maritime Museum, San Francisco, is the the largest by tonnage, most significant, grouping of historic vessels representing West Coast merchant marine vessels, in the United States if not the world. The current collection was assembled from a number of different sources: the ALMA, C.A. THAYER, EUREKA, HERCULES, WAPAMA, and the ARK came to the National Park Service from the California Parks and Recreation Department; two others, BALCLUTHA and EPPLETON HALL, came from the San Francisco Maritime Museum; and a significant collection of small craft was acquired from a variety of other sources. Each of the vessels was chosen for preservation because it represented an important vessel type used in maritime transportation and trade on the West Coast.

THE HISTORIC FLEET

At this time, five of the vessels in the collection have been recognized for their important contribution to the nation's history by their designation as National Historic Landmarks: BALCLUTHA, C.A. THAYER, EUREKA, HERCULES, and WAPAMA (currently moored at the U.S. Army Corps of Engineers Bay Model in Sausalito). The ALMA is listed on the National Register of Historic Places and may well prove eligible for National Historic Landmark status in the future. Another vessel, the ARK, is a houseboat and also listed on the National Register.



ALMA

The scow schooner ALMA was built in San Francisco in 1891. She is the sole survivor of some 400 such vessels—the scow, literally a square-ended, flat bottomed craft, was developed during the Gold Rush years to haul bulk goods around the Bay and the Sacramento Delta. She was acquired by the California Parks and Recreation Department in 1959 and restored to sailing condition. She has been used as a sail training vessel for city youth, a role for which her broad, stable hull is well suited.

BALCLUTHA

A steel, square-rigged ship built in Glasgow in 1886, the BALCLUTHA was designed for the California grain trade. She came to San Francisco for the first time on her maiden voyage to load wheat for

Europe. In 1899, she gained American registry and ran for a time as a lumber carrier. She was then acquired by the Alaska Packers Association of San Francisco. Renamed the STAR OF ALASKA, she ran until 1930 as a supply ship for cannery operations on Kodiak Island, Alaska.

The BALCLUTHA was purchased by the San Francisco Maritime Museum in the mid-1950's and extensively refitted for use as a stationary museum ship. Berthed at Pier 43 on Fisherman's Wharf, she has proved to be a popular and successful addition to the waterfront scene. She recently returned to her San Francisco berth with a renewed main topmast, a new coat of paint and her plates reinforced around the waterline. Living spaces for officers and crew have been restored. Remodeling and renewal of interpretive panels in other areas of the ship is currently underway.

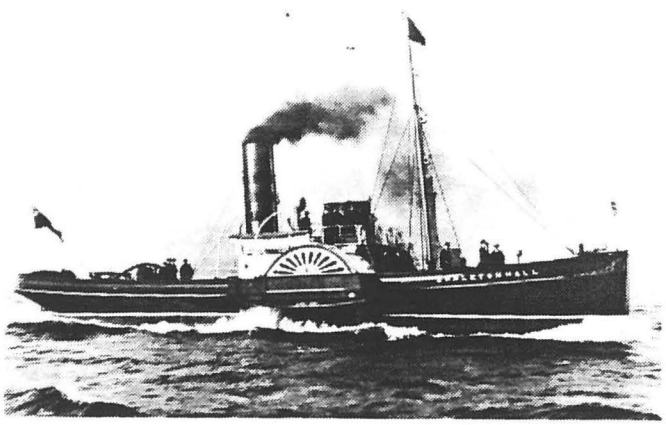
Planning is currently underway for BALCLUTHA's move to Hyde Street Pier, consolidating the fleet, in 1987.

C. A. THAYER

The C.A. THAYER is one of two remaining three-masted West Coast lumber schooners in existence. From the 1870's to the 1920's, these schooners were the workhorses of coastal transport, hauling from the northwest the lumber which built the cities of San Francisco, Los Angeles, and San Diego. C.A. THAYER was launched in 1895 by Hans Bendixson at Fairhaven across Humboldt Bay from Eureka, California. She worked in the lumber trade until 1912, then spent a dozen years as a "salmon packet," transport for an Alaskan salmon salting operation. Finally, she worked as a codfisherman in the

Bering Sea. Her final trip in this trade, made in 1950, was the last commercial voyage by an American sailing vessel.

Each year the C.A. THAYER is boarded by more than 200,000 people. Through the exhibits aboard and their experience of the vessel herself, visitors come away with a very personal sense of what it would have been like to make a voyage in her. An even more intense experience is offered to the over 900 children who each year spend a night aboard through an environmental living program. Cooking their supper and breakfast in the galley, manning the halyards and performing other sailorly tasks, these children are exposed to the rudiments of seamanship and often develop a serious interest in maritime matters.

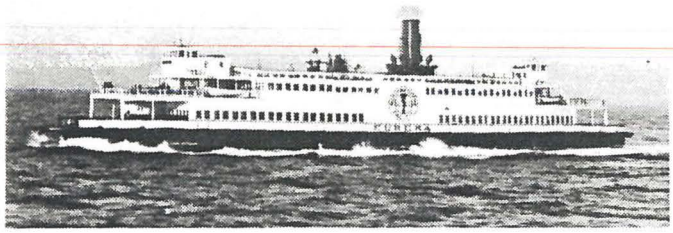


EPPLETON HALL

The paddle tug EPPLETON HALL was built in England in 1914. This 100 foot steel-hulled tug is similar to the paddle wheel type tugs used on San Francisco Bay during Gold Rush times. She is powered by two single cylinder engines of the side lever type; these "grasshopper" engines are a striking example of early 19th century steam technology. The EPPLETON HALL was acquired by the San Francisco Maritime Museum in 1970, crossing the Atlantic under her own power.

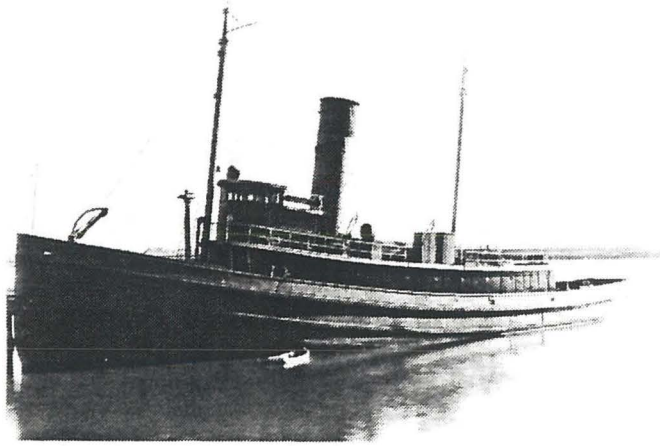
EUREKA

The EUREKA is the last walking beam engine paddle wheel ferry in the United States. She was built as the UKIAH at Tiburon, California in 1890 for the Northern Pacific Railroad as a train ferry, basically for railroad cars. In 1920, she was rebuilt from the main decks up as an auto and passenger ferry and



renamed the EUREKA. She spent the rest of her working career on San Francisco Bay and was retired after 67 years of service. After retirement, she was occasionally used as a night relief boat on the Tiburon run from Hyde Street Pier, although never a regularly scheduled part of this service. The EUREKA is moored at her old berth at Hyde Street Pier.

In addition to her interest as part of the San Francisco Bay ferry fleet, the EUREKA is of exceptional technical significance because of her walking beam engine. This is a single cylinder steam engine of a type first used in the 1820's. When EUREKA's engine, almost four stories high, was built in 1890, it was almost an anachronism. The simple walking beam type, however, was so reliable and so well suited to paddle wheel drive, that it still made sense to use it at that late date. The engine, with its bore of 65 inches and a stroke of 12 feet is one of two such engines preserved in the United States and by far the largest. The engine room is open to the public for ranger guided tours.

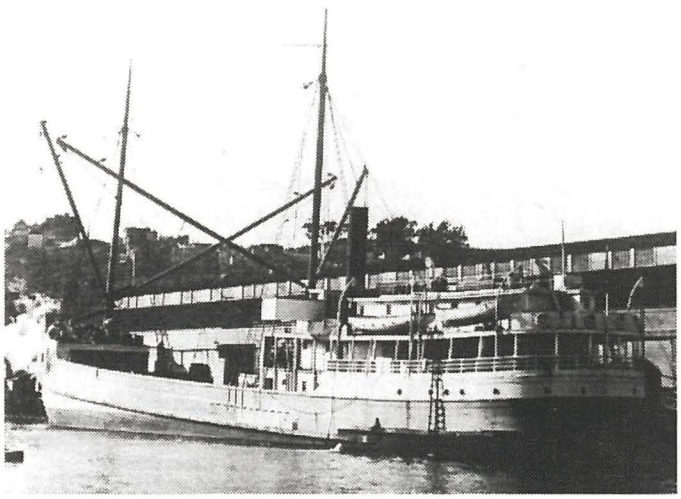


HERCULES

The HERCULES is a steel hulled ocean-going steam tug. She was built at Camden, New Jersey in 1907 to the order of the San Francisco based Red Stack Tugboat Company and spent her entire working career on the West Coast. Until 1924, she was an "outside" tug towing barges and vessels as far north as Alaska and south to Central America. Her later working days were spent on San Francisco Bay moving railroad barges (car floats) for the Western Pacific Company.

An exceptionally well built vessel, HERCULES is still in good

condition. Her three cylinder steam engine is free to turn over and her boiler casing of inch and one half plate is little deteriorated. This impressive vessel has attracted a dedicated volunteer crew who are committed to its restoration. The priority at the moment is the restoration of the boiler tubes, which, when completed, will allow the HERCULES to steam again.



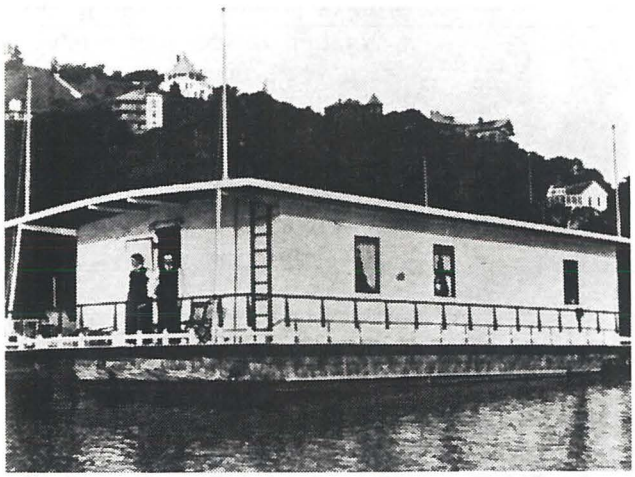
W A P A M A

The WAPAMA was one of some 225 wooden hulled steam schooners built for the Pacific Coast lumber trade. Built in 1915 in St. Helens, Oregon, this 205 foot vessel not only handled cargo, but was fitted with accommodations for 30 passengers. She is the last coastal steamer preserved on any coast of the United States.

Following her acquisition by the State of California in 1959, the WAPAMA was partially restored and open to the public from 1963 until 1979. Visitors were able to tour her varnished passenger saloon, the carefully restored "honeymoon" and other cabins, and the engine room with its "up-and-down" steam engine. By 1979, her hull was seriously weakened by age and the ends of the vessel were sagging alarmingly. At that time a decision was made to place her on a steel barge in order to avoid a hull failure that could have resulted in her sinking at her berth. The WAPAMA and her barge are moored in Sausalito.

Although the concept plan recognizes and provides for the return of the WAPAMA to the Hyde Street Pier, the reality of her return is uncertain at this time. Stabilization work is currently underway, but the results of this effort will not be evident until at

least 1989. At that time, the feasibility of returning the WAPAMA to Hyde Street will be addressed.



A R K

The ARK is a historic houseboat that was once used as a summer home by well-to-do families. She is one of the last survivors of the floating communities of houseboats (or "arks" as they were called) that once flourished in sheltered parts of San Francisco Bay. The "Lewis Ark" as she is sometimes called after her last owners, was threatened with demolition at its location ashore in Tiburon, California. She was saved and brought to the Hyde Street Pier in 1969. The ARK is located on the pier and is open for visitors to admire her period furnishings and to reflect on a more leisurely by-gone era.

PRESERVATION OF THE HISTORIC SHIPS

MAINTENANCE

There are many compelling reasons for developing a concept plan for the Hyde Street Pier which takes into consideration the berthing of all seven historic ships at the pier. Along with interpretive needs, maintenance is the amongst the most important. In the past, a lack of funds has produced a history of deferring needed repairs of the ships in the fleet and of the pier itself. The result is a deteriorating pier and an ever increasing bill for repair and restoration of the ships.

The greatest need of the fleet is to increase the level of daily maintenance, which should largely consist of small repairs done in a timely manner. Provided reasonable shop and storage facilities are close at hand, most repairs can be done on board by staff or contractors without going to a shipyard. Doing the work alongside will save yard overhead, loss of public viewing time, and diversion of supervisory effort when key personnel lose large portions of the day travelling to off-site yards to oversee contract work. This does not negate the need for periodic work in shipyards; there will always be a need for yard periods for maintenance of the underwater portions of the hulls and for such major renewals as cannot be accomplished afloat. But much of the work done in shipyards in recent years would not have been necessary had the maintenance level on a daily basis been satisfactory.

Because drydocking for routine coatings maintenance is an intermittent requirement, it will probably always be more cost effective for such work to be undertaken at commercial yards, at least for the steel vessels. Routine drydocking for certain required work will be necessary, but even major restoration projects can be carried out without recourse to a commercial shipyard if shore side work space, storage areas, utilities, truck access, and adequate berthing space in a sheltered location are provided.

Increasing the potential for maintenance work to be undertaken at Hyde Street Pier will also provide the opportunity for including this aspect of the NMM's activities in its interpretive plan for the pier. Viewing such work can be a significant attraction in its own right while at the same time educating the public to the needs of the fleet.

BERTHING

Tri-Coastal Marine, the consultant to GGNRA who is preparing a fleet plan, believes that the construction of the breakwater has dramatically changed the parameters at Hyde Street Pier—protection is now afforded from swells and storm generated waves. A pier in this location will be able to take advantage of the breakwater and with a new design be able to present acceptable berthing configurations to address the preservation and interpretive needs of the fleet.

Rebuilding Hyde Street Pier to a new configuration presents the opportunity to solve several problems at once:

1. The existing, rotting pier currently in the process of collapse can be replaced.

2. A new pier can be designed to accommodate the entire fleet as well as offering flexibility in berthing visiting vessels.

3. The protection from wave action given by the breakwater can be taken advantage of by locating some of the vessels within the hook of the breakwater.

4. A new pier can better incorporate the needs of the fleet for proper maintenance facilities. Planning an increased capacity for on-site maintenance, repair, and restoration work is crucial for the long term survival of the fleet. The provision of a repair berth is a necessity.

5. Retaining the historic location of the EUREKA relative to Hyde Street and the pier is desirable and should be accommodated.

6. A new pier can provide public access to all the historic ships (not currently available with the existing pier).

PIER FUNCTIONAL PROGRAM

EXISTING FACILITIES

Structural Condition of the Pier

(Excerpted from the *Preliminary Structural Evaluation and Budget Repair Cost Estimate for Hyde Street Pier*. p.1. The text portion of this report is included in the Appendix.)

> This original structure [the existing Hyde Street Pier], now over 50 years old, is in an advanced state of deterioration...Pier deterioration has now reached the point where some portions are restricted from public access and two areas have been closed and abandoned. . . . While the general impression of the pier to a casual observer may be one of structural soundness, detailed investigations of the structure have repeatedly concluded that the existing pier support structure remains seriously weakened.
>
> It is our [Ace Pacific Company] opinion that the Hyde Street Pier should be replaced as a restoration project at the earliest possible opportunity. Should replacement not be possible in the very near future, remedial construction work to bolster the shoreside sections should be immediately initiated.

Existing Pier Configuration

The existing pier is in need of repairs and future replacement, but beyond its immediate physical condition is the question of its configuration. It is narrow and offers extremely limited space for accommodating all of its required functions. The pier is used for a number of activities, not all complementary to each other, including repair work to the ships, temporary storage of materials, visitor and vehicular access, and exhibits of maritime artifacts. Some staff facilities are also located on the pier. Its poor arrangement and inefficiency is further aggravated by its weakened structural condition. The pier is also too small to offer along side berthing for the entire fleet of seven ships.

Prior to the construction of the breakwater, Hyde Street Pier was in a very exposed location. Over the years the ships have suffered severe weathering from the westerlies, as well as the constant strain of surging at their moorings. The breakwater has helped to alleviate this situation and makes planning for a new pier in this location a realizable goal.

However, it became obvious that merely reconstructing the existing pier would not not meet the goals and objectives of the National Maritime Museum for its historic fleet. With the previously stated goal of consolidating the fleet in one location and the other factors which pointed to the inadequacy of the existing pier, it was necessary to consider alternatives to the existing pier in the conceptual plan.

PROPOSED PROGRAM - SUMMARY

The program for the pier is one which reflects realistic needs for the foreseeable future. It takes into consideration the requirements for preserving the historic ships, developing an interpretive program, and the physical facilities for visitors, administrative staff, maintenance staff, and deck hands. It was developed over a series of meetings with the staff of the National Maritime Museum. What emerged from these meetings was specific data and information with respect to the activities, uses, and facilities which should be part of the pier. A summary of these requirements follows.

Preservation Requirements for the Historic Ships

•Consolidation of all vessels at Hyde Street Pier. Returning WAPAMA to the Pier and moving BALCLUTHA from Pier 43 will increase the efficiency of preserving these ships and is essential for interpretive purposes.

•Protected berthing for all vessels. All vessels will be located and oriented to reduce the effects of tidal currents and swell. Maximum use will be made of the protective breakwater by mooring of large vessels in the lee.

•Restoration and maintenance facilities. Shore side facilities to support the ship preservation staff is an essential part of the Pier. This includes work shops, and storage space for the shipwrights, riggers, and deck hands. A minimum of 32,000 square feet for such uses is necessary.

•A lay berth facility (a protected berth for working on vessels while in the water). With the provision of a lay berth, 90% of all preservation work can be performed on-site by staff. This facility will be located in a protected area away from the swell and will be of a size which can accommodate any of the historic ships.

•Provision for end-for-ending all vessels in their slips. Sufficient berthing space will be provided so that all vessels can be moored in either direction in their berths. This will allow periodic end-for-ending of vessels to achieve even weathering of exposed surfaces.

•Shore side access. Sufficient pier space is necessary to accommodate maintenance vehicles and equipment (including a small crane), as well as visitor traffic and emergency access. Additional space is needed for temporary storage of materials in use for ship maintenance. Minimum pier width is 40 feet.

•Water side access. Transportation of historic ships to shipyards for cyclical maintenance will require navigable access to all berths.

Interpretation Requirements for the Historic Ships

•Public access. Visitor access to all vessels is desirable, feasible, and necessary.

•Sight lines and presentation of the vessels. Access and experiencing the vessels is dependent on visual access through clear sight lines and presentation of all vessels.

•Interpretive program. Interpretation of the vessels will include exhibit panels, demonstrations, and live interpretative programs on the pier.

•Maintenance as interpretation. Maintenance and preservation of the vessels is an integral part of the interpretive program and will form a significant part of the visitor's experience at the pier.

•The pier as a museum. The pier should operate as a "gallery" for the exhibition and presentation of the historic ships.

•Presentation of the vessels in their historic context. The historic vessels are most appropriately presented in a historic context. This context is dependent on the aesthetic setting, activities, physical environment, and historic precedents for mooring of the vessels.

•Small craft program. Small craft activities, including preservation, demonstration programs, classes, mooring, and replication are a functional unit which can best be interpreted as an entity.

•Accommodating special events. A visitor activity area for approximately 1,500 people is necessary for seasonal events and special programs. Two such examples include the Festival of the Sea and the Maritime Heritage Festival.

•Charging fees. A fee will be charged for all regular pier visitation and activities.

Design Requirements for the Pier and Historic Ships

•Visual sightlines. Maintain sightlines from Aquatic Park, Fort Mason, Hyde Street, and the Fisherman's Wharf area, to the extent possible.

•Berthing. Take into consideration the berthing requirements for preservation and interpretation of the historic ships including the following:
- •Keep EUREKA at her historic location.
- •Place C.A. THAYER in the lee or orient to the swell.
- •Place BALCLUTHA in the protection of the breakwater and/or orient to the swell.
- •Include berthing space for the WAPAMA (on barge).
- •Include berthing space for a repair berth.
- •Include floating piers for the three smaller vessels.
- •Include small craft facilities.

•Physical facilities. The plan should accommodate the requirements of the preservation and interpretive program for buildings and other space requirements. Among the major facilities are the shipwrights' shop (5,000 SF), an outdoor work area (6,000 SF), rigging loft (3,000 SF), small boat facilities (4,800 SF), staff facilities (6,000 SF), visitor facilities (a total of 2,900 SF), and an outdoor area to accommodate special events of up to 1,500 people. Both the "Ark" and "Tubbs Building" will be relocated to the new pier.

•Pier dimensions. The length of the Pier should be kept to a minimum. Its width should be 40 feet minimum to accommodate visitor access, vehicular access, temporary storage of materials, maintenance equipment.

PROPOSED FACILITY AND SPACE REQUIREMENTS

The table which follows presents data on the facility and space requirements for the berthing, preservation and maintenance, and interpretation of the NMM's collection of historic ships. These requirements have been evaluated by the consulting team and staff of the National Maritime Museum and placed in one of three priorities for location on the pier. The priorities are as follows:

1. *Essential.* Must be located on the Hyde Street Pier for preservation of the vessels and the effectiveness and efficiency of maintenance and interpretive functions. There are no alternatives to placing these facilities on the pier.

2. *Very Desirable.* Should be located on the Pier for effective and efficient preservation, maintenance, and interpretation of the vessels. Alternatives may be available (i.e. the Haslett Warehouse), but they may seriously impair effectiveness of operations.

3. *Desirable.* Should be located on the Pier, but will not seriously impair the effectiveness of operations, if located on alternate sites.

TABLE 1
NATIONAL MARITIME MUSEUM, HYDE STREET PIER - FACILITY AND SPACE REQUIREMENTS

PRIORITY	CATEGORY	FACILITY	AREA IN SQUARE FEET	# OF SPACES OR UNITS	MINIMUM DIMENSION
1	Berthing	Berthing space - small craft		6 ships	
		Berthing space - historic ships		7 historic ships	
		Berthing space - repair berth		1 ship	
	Features	Access through Fisherman's Wharf lagoon for ships			190 ft
		Beach access at Aquatic Park			
		Davits		4 pair	
		Emergency vehicle access			8 ft width
		Emergency equipment			
		Fenders and dolphins			
		Lighting			
		Loading and delivery access			
		Maintenance access			
		Pier width		40 ft	
		Power capstans			
		Public barriers			
		Sight lines to ships			
		Signage - informational			
		Signage - interpretive			
		Small crane access			
	Other Facilities	Curatorial work and storage space	250		
		Refuse collection area	300		
		Utility building	200		
	Ship Maintenance Facilities	Air compressor - central facility and storage	400	Compressor and 8 portable pumps	9 ft high for fork lift access
		Equipment and gear storage	1,500	30x50 ft.	9 ft high entry
		Immediate storage, lockers, rope locker	6,000		9 ft high entry
		Industrial elevator		As necessary	
		Open staging area - lines, etc.	3,500		
		Outdoor work area	6,000		100 ft
		Paint shop and storage - enclosed	500		
		Painting and sandblasting area	300		9 ft high entry
		Rigging loft (second floor)	3,000		100 ft
		Shipwright wood shop	5,000		100 ft
	Small Craft Facilities	Launching ramp		1 ramp	15 ft wide
		Small boat shop and adjacent open work space	2,000		
		Small craft exhibit - sheltered	1,000		

PRIORITY	CATEGORY	FACILITY	AREA IN SQUARE FEET	# OF SPACES OR UNITS	MINIMUM DIMENSION
	Staff Facilities	Kitchen	150		
		Locker room and showers	450		
		Lounge/lunch room	200		
		Meeting room	200		
		Parking - volunteers and service vehicles		20 spaces	
		Staff offices	3,000		
		Staff rest rooms	340		
		Volunteer center	1,000		
	Visitor Facilities	Bookstore	800		
		Donkey engine display and demonstration area	300		
		Existing historic buildings - Ark and Tubbs	1900		
		Fee collection	100		
		First aid station	100		
		Outdoor event area		1,500 people	
		Public rest rooms	400		
		TOTAL FOR PRIORITY 1:	38,890 SQ. FT.		
2	Berthing	Berthing - guest vessel		1 ship	
	Features	Coffee shop (aboard Eureka)			
		Connection to breakwater			
		Open space at foot of pier			
		Outdoor display area			
		Public rowing areas			
		Small craft access under pier			
		Turn around on pier for vehicles			
	Ship Maintenance Facilities	Blacksmith and machine shop	1,000		9 ft high entry
		Lumber storage - sheltered	3,200		9 ft high entry
		Sail loft and storage, canvas work area	2,000		
	Small Craft Facilities	Small craft classroom	800		
		Small craft exhibit/storage - sheltered	1,000		
	Visitor Facilities	Craft workers space	400		
		Information center	800		
		Marine engine displays			
		TOTAL FOR PRIORITY 2:	9,200 SQ. FT.		
3	Features	Turning basin for ship rotation			
		Under pier useable space			
		Wind deflectors			
	Staff Facilities	Volunteer housing	1,000		
	Visitor Facilities	Audio visual room and classroom	400		
		TOTAL FOR PRIORITY 3:	1,400 SQ. FT.		

TOTAL AREA FOR PIER FACILITIES: 49,490 SQ. FT.

PIER CONCEPT PLAN

DESCRIPTION

The concept plan for Hyde Street Pier is the result of many factors: the NMM's program requirements, the Port of San Francisco's plans for its own Hyde Street Commercial Fishing Pier, and the National Park Service's position regarding encroachment into Aquatic Park. These were all taken into consideration, compromises made, and a plan developed. It attempts to meet the major objectives as previously outlined and presents a vastly improved facility for the preservation and interpretation of the historic fleet. Most of the detailed program requirements found in the previous table have been accommodated and the consolidation of the fleet can be accomplished.

It should be stated at the outset that no consideration was given to any other site for berthing the historic fleet. Previous consideration has been given by GGNRA/NPS to alternate sites including a location on the west side of the Aquatic Park lagoon, but concept plans for sites other than Hyde Street were not studied. An assessment of the western side of Aquatic Park as a berthing space for the historic ships was made in March, 1987. This evaluation of conditions along with evaluations done of the Hyde Street site, strongly suggest development of the latter as the superior option for the long term preservation of the ships. The existing location was thus taken as a given.

Another given was the area within which the pier and the vessels could be located. This proved to be somewhat elusive. In the beginning of the study, this area was the property within the existing lease boundaries. Some liberties were taken by the consultants in going beyond the lease boundaries to develop an optimal plan, but the thought always was to ultimately accommodate the program within the existing boundaries. This assumption changed prior to developing the last iteration of the concept plan as a result of discussions with the Port regarding their proposed fish handling facilities. Currently, the entire plan lies within the boundaries of the existing lease with minor modifications already discussed and concurred with by Port Authority staff.

The concept plan assumes that two buildings on the east side of the forepier currently under long term leases to the Port will remain in place. These are both located at the beginning of the existing pier just off of Jefferson Street. On the west side, the plan takes into consideration the location of the existing buildings occupied by local swimming clubs.

Although no details have been presented in the plan, it assumes that there will be an attractive entrance to the pier at Jefferson Street. The *Interpretive Prospectus* states "The entrance to Hyde Street Pier must be redesigned to be more inviting and attractive and to accommodate fee collection." (p. 37) Important considerations for the "forepier" include relationships to the Haslett Warehouse (proposed to house additional NMM facilities including indoor exhibits), the entrance to the Port's pier complex, and other visitor oriented facilities in the area—the Cable car turnaround, Victorian Park, and Fisherman's Wharf. The entrance provides the visitor with instant recognition that this is the beginning of an experience he/she cannot find elsewhere in the Fisherman's Wharf area or for that matter in other parts of San Francisco or the Bay Area. The maritime theme is presented in a way that reinforces the historic nature of the pier while at the same time, not falling into cliches, not presenting the exhibits as an "artifact petting zoo."

Just past the immediate entrance is a complex of buildings which house facilities for the visitor and the NMM'S administrative and maintenance staff. These are in an appropriate style of architecture again to complement the museum experience. Views unfold at this point presenting vistas of most of the pier and the majority of ships. The masts of BALCLUTHA and C.A. THAYER stand out as a backdrop to the other vessels. The western side of the pier has been kept free of buildings to preserve this view out to the Bay and the Golden Gate Bridge. The following major uses are included at this location:

Fee collection
Bookstore
Public Restrooms
Park Ranger Offices
Shipwright Wood Shop
Rigging Loft
Equipment and Gear Storage
Small Craft Shop

At this point the pier changes direction from its alignment with Hyde Street and angles approximately 54° to the west. A large open space is provided to serve both the need for a public gathering area and to accommodate the storage and outdoor work areas required by the shipwrights and deckhands. Activities of all kinds can take place here from annual festivals to impromptu performances. The public has an opportunity to experience the on-going maintenance and repair activities of the pier at this location as this is the center of such work on the pier. Provisions for berthing two ships, the ferryboat EUREKA and the WAPAMA on her barge, have been made; the EUREKA is berthed near her original ferry boat slip.

Proceeding down the pier, to the west are the small craft followed in succession by the EPPLETON HALL, HERCULES, and ALMA. These are berthed at floating finger piers. The C.A. THAYER is berthed on the east side. The pier at this point is 40 feet wide. This width is necessary to accommodate the various activities taking place here, often simultaneously: visitor access, limited vehicular access (at times a small crane), and temporary storage of materials for repairs. A bussle of activity goes on here at all times of the day—maintenance staff and deck hands are working on the ships, small craft demonstrations are going on, groups of visitors are taken through on guided tours, individuals are exploring on their own. But even with all of this, one is drawn farther out, lured by the sight of the BALCLUTHA.

Coming to the end, the pier widens to accommodate a small visitor and staff facility. Contained in this building are restrooms, offices, and on the second level, an enclosed overlook where sweeping views are afforded of the Bay and the entire pier. Additional pier space and a small building are provided on the east side for a repair berth. These facilities can accommodate the equipment and storage requirements needed for repairs to take place and for protected berthing of the vessels while undergoing such work. Here within sight of visitors, major maintenance and repair activities can take place. When not in use for ship repair, this berth is used for guest vessels. On the west side, in the hook of the breakwater, is the BALCLUTHA. She is the culmination of a visit to the pier, and, together with the views of the Bay from this vantage point, gives the visitor a truly satisfying experience.

DESIGN STRENGTHS AND WEAKNESSES

The following analysis of the concept plan compares the conceptual design to the goals and objectives of the study and the program developed for the pier by the consultants and NMM.

The new pier as envisioned by the concept plan meets the major goals and objectives of the project and also most of its program requirements.

- The pier is able to accommodate all the historic ships and a repair facility. Their location along the pier will enhance their interpretation: the EUREKA is close to its original berth and other vessels are thematically grouped.

- It takes advantage of the breakwater for berthing the BALCLUTHA and placing the repair berth in a sheltered location. The smaller vessels although out of the protection of the breakwater, are

oriented to minimize stress from the swell. All vessels are capable of being maneuvered out of their berths.

- The small craft associated with the Small Craft program are berthed on the west side of the pier at their own floating pier. In addition, a ramp has been provided for access from the pier to the water.

- The majority of the program needs for the maintenance and administrative staff have been accommodated. These facilities have been located, as desired, at the "beginning" of the pier.

- Visitor needs have been accommodated at strategic locations on the pier. Fee collection, bookshop, overlooks, etc. have been provided for an enhanced visitor experience.

- The pier and all of its facilities, and the historic ships have been accommodated within the negotiated boundary. The physical presence of the pier and program activities are located to minimize encroachment into the Aquatic Park basin.

- The width of the pier is able to handle the multiple needs of vehicular and pedestrian access, and temporary storage of materials and equipment.

The proposed configuration and location of the pier takes all of the constraints and program requirements into consideration and offers compromises. The result is a pier which works to satisfy most of the program criteria, but which also has it's shortcomings.

- By placing the majority of facilities at the beginning of the pier, the entrance becomes crowded with many different activities and buildings. That these facilities are located here is both desirable and necessary, however, one impact has been to add distance to get to the ships—there is approximately 600 feet between the beginning of the pier at Jefferson Street and the first ship, the EUREKA. Careful planning to properly locate the structures and a high quality of architectural design will be needed to have them contribute rather than detract from the sense of welcome necessary at this location.

- Concentrated berthing of the vessels may enhance their interpretation, but it results in less than optimum locations for long term preservation. At least one vessel, the C.A. THAYER, will be oriented such that it may be subject to more stress from wave and tidal action than if it was able to be berthed differently.

- Egress and ingress for ships from the east side (ultimately exiting between the breakwater and Pier 45) is very constrained and careful maneuvering will have to be planned to get them in and out of their berths.

- A large amount of pier surface became necessary in order to accommodate all the program requirements. This will have to be analyzed from a cost standpoint especially given that a significant portion lies in deeper water where construction costs are higher.

- The area and shape of the outdoor storage and working areas are not ideal.

Neither a strength or a weakness, the concept plan as presented does not allow for access to the breakwater from the pier. There were unanswered questions regarding the provision of access and due to the fact that the NMM's pier will be a limited access facility by virtue of an admission fee, there could not be guarantees of unlimited access to the breakwater. The plan therefore shows the pier stopping short of the breakwater.

Overall the concept plan works. That compromises had to be made did not overly detract from it as demonstrated by the fact that most of the program requirements were met. Those needs, whether programmatic or physical, which could not be accommodated on the pier itself, will need to be addressed as part of the NMM's greater planning effort for all of its facilities and programs. For example, opportunities exist for using the Haslett Warehouse for some of these needs. Also, with plans for a new commercial fishing pier at Hyde Street moving forward, immediate consideration should be given to mutually beneficial and cooperative arrangements between the National Park Service and the Port of San Francisco. Some of the possibilities include coordination of truck access, staff parking and vehicular circulation between the two piers, use of the same utility corridor, and taking advantage of cost savings which may arise due to the similarity of certain infrastructural requirements.

The concept plan presents but one of a number of possibilities for the future development of the Hyde Street Pier. As final decisions are made regarding the commercial fishing pier, the creation of a maritime museum under the legislation conceived by the late Congresswoman Sala Burton, and with the completion of other plans and studies affecting the historic fleet, this plan will require re-examination. Hopefully, at that time, the concept will lead to detailed design and the actual construction of the pier. Until then, the current plan presents a realistic design for assuring the long term preservation, display, and interpretation of the National Maritime Museum's collection of historic ships.

ESTIMATED COST

The concept plan represents only general thinking regarding the manner in which the various needs and facilities for berthing the historic ships can be accommodated. Therefore an estimate of the ultimate cost of the pier must be seen as being based on extremely broad considerations and a range of probable construction costs, while a more accurate estimate can be undertaken only after detailed plans and designs are prepared.

FACILITY	SQUARE FOOTAGE	COST PER SQ. FT.	COST ESTIMATE*
FOREPIER (construction on firm ground)	11,500	10-20	115,000-230,000
PIER STRUCTURE (construction on pilings)	114,000	110-175	12.5-19.9M
BUILDINGS	20,000	80-100	1.6-2.0M
TOTAL			$14.2-22.1M

* Excludes cost estimate for utilities, moorings, and demolition of existing pier.

APPENDIX

NATIONAL PARK SERVICE

GOLDEN GATE NATIONAL RECREATION AREA

PRELIMINARY STRUCTURAL EVALUATION

AND

BUDGET REPAIR COST ESTIMATE

FOR

HYDE STREET PIER

SEPTEMBER 23, 1986

ACE PACIFIC CO.

GENERAL

The Hyde Street Pier, a part of the Golden Gate National Recreation Area Maritime Museum, is used for display and support of various historical maritime vessels and artifacts. It is an old timber pier structure located near Fisherman's Wharf at the foot of Hyde Street. The Pier is leased by the San Francisco Port Commission to the National Park Service. It has long been used as a Maritime Museum by the City of San Francisco, the State of California and currently by the GGNRA.

This original structure, now over 50 years old, is in an advanced state of deterioration. During its long service life a few repair projects have been accomplished, the last occurring in about 1962 and designed by Caltrans. A number of engineering investigations have been made of the pier structural condition. The last was conducted for the National Park Service by Pan-Marine Construction Inc. in 1982.

Pier deterioration has now reached the point where some portions are restricted from public access and two areas have been closed and abandoned. Visual decay and structural damage are currently a cause for alarm and the National Park Service, Golden Gate National Recreation Area, is now taking action to determine whether the Pier should be repaired, replaced or abandoned for a new location.

ACE Pacific Company was requested under Contract 8140-6-0004 Modification No. 7 to review the earlier structural investigations of the Pier and to make a visual inspection of the current Pier condition as necessary to form an opinion about the general structural condition of the structural support. The report is to include a preliminary estimate of construction cost. This Report presents the current Pier condition and outlines that estimate of construction costs.

CONCLUSION

The structural condition of the Hyde Street Pier has continued to deteriorate. While the general impression of the pier to a casual observer may be one of structural soundness, detailed investigations of the structure have repeatedly concluded that the existing Pier support structure remains seriously weakened.

Of a total of approximately 500 pilings we found about 70% of the pilings under the shoreside section of the Pier are damaged and in need of repair and about 25% of the outer section. Hardware and utility lines are in an advanced state of corrosion. Conditions are such that there is a real concern if the Pier, particularly the shoreside sections, should remain open to the public.

It is our opinion that the Hyde Street Pier should be replaced as a restoration project at the earliest possible opportunity. Should replacement not be possible in the very near future, remedial construction work to bolster the shoreside sections should be immediately initiated.

DISCUSSION

To determine the current condition of the Pier, a visual inspection was made by Structural Engineer Kurt Raillard during a low-low tide on April 28, 1986, with follow-up inspections on April 30 and August 11, 1986. These inspections were made from a Boston Whaler. They involved visual inspection of each bent of the Pier, the deck underside, all piling, hardware and utilities. No special equipment was utilized in determining piling soundness, the deterioration being generally advanced to the point where simple non-destructive sounding was sufficient.

The current investigation indicates that Pier deterioration has continued to advance. There is, however, a considerable difference in the present condition of the shoreside and bayside sections of the Pier.

Pilings

The pilings throughout the Pier are in varying degrees of deterioration ranging from approximately 100% sound wood to complete decay. Generally those pilings located within the shoreside section of the Pier are in serious condition with about 70% requiring action while those in the bayside section only require action on approximately 25% of the pilings. The majority of the piling caps are completely corroded and often missing in the shoreside section.

Hardware

The hardware varies from galvanized pieces in good condition to bolts and nuts completely rusted through. It appears the hardware in the bayside section of the Pier was galvanized and generally is in fair condition, although rusting. In contrast the shoreside hardware is nearly all corroded beyond use. The hardware supporting piping and conduit beneath the Pier is badly corroded, resulting in utilities which are frequently unsupported in areas.

Utilities

The utilities throughout the Pier are in very serious condition. The water and fire protection lines are rusted nearly through for their entire length. The electrical conduit has entire sections rusted away resulting in places where the conductors are themselves supporting the conduit. Other electrical lines are strung beneath the Pier without any type of encasement.

The utilities are such that should a fire occur, which appears imminent due to the condition of the electrical system alone, the present water supply lines may fail to function.

Decking

The bents, stringers and planking making up the decking appear to be in relatively stable condition in the bayside section of the Pier and require only limited attention. The shoreside decking, however, has sections in the parking area and near the "Eureka" ramp which are completely collapsed and/or missing. There is extensive rot of both the planks and the stringers throughout this section. The bents in the parking areas appear free of

extensive decay but are split in areas of piling failure or settlement.

The surfacing along the top of the Pier is badly checked and cracked and missing where there is extensive damage below. In the parking area, many steel plates have been layed upon the decking to distribute the vehicle loads and prevent the tires from punching through the deteriorated decking structure.

The documents which appear to be most valuable in assessing Pier conditions include:

State of California
Department of Transportation (Caltrans)
Hyde Street Pier Rennovation
Pile Layout
As-Built Drawing #6-34P1-2
June 1962

Pan-Marine Constructors Inc.
Hyde Street Pier - Report of Inspection
September 10th 1982

State of California
Department of Transportation (Caltrans)
Supplementary Bridge Reports
Dated 5-10-72 through 12-17-76

The As-Built drawing indicates that a considerable amount of remedial work was accomplished, consisting of the removal of approximately three hundred piles and the installation of approximately the same amount in a substantially different configuration. However, this drawing is not truly representative of the present structural layout, indicating that some undocumented changes have taken place.

The Pan-Marine Construction Inc. Report is included in the Appendix. Generally, their findings were that all of the pilings in which there was less than 50% of the good wood remaining should be repaired by jacketing or replaced. This amounted at that time to 72 piles out of approximately 500, or around 15% of the total pier pilings. This number has grown to approximately 260 today or 52%.

The Caltrans bridge reports reveal a substantial history of decay and damage without corresponding maintenance. The reports have made numerous recommendations to reconstruct the parking and service areas, replace bent caps, stringers, decking and utilities which have deteriorated or been damaged. These recommendations, dating back as far as May 1972, have yet to be initiated.

It is significant to note that the Pan-Marine report was commissioned following the severe winter storms of 1982, during which the Pier took a terrific beating, but from which it survived without major damage.

This difference in the state of decay between the two sections of the Pier was noted in the reports by Pan Marine Company and Caltrans. It should be noted that at the time of the Pier repair of 1962, the majority of the work was performed on the bayside section primarily between bent number 29 and the end of the Pier (labeled bent 85 on the as-built drawing in the Appendix).

Photographs of current deterioration conditions are included in the Appendix.

OPTIONS

Current regulatory requirements for new construction and re-construction in San Francisco Bay have become formidible. Our experience indicates that whenever new work involves an increase in water displacement, such as concrete jacketing of piling, that there is much resistance from the Agencies. Further, Pier deterioration in general is now to the point where major repairs to only selected portions would leave the remaining portions significantly weaker. It is our opinion that the Pier should be reconstructed as a faithful restoration, thus avoiding many Regulatory Agency objections. Construction costs for restoration will not vary greatly, and perhaps may be less, than the costs associated with major repairs and remedial work.

CONSTRUCTION COST ESTIMATE

As requested we have prepared a preliminary cost estimate for the repair of the Hyde Street Pier. Included also is a preliminary cost estimate for the restoration/replacement of the entire Pier. It is important to note that the costs of repair for the shoreside section of the Pier may be greater than the complete replacement of the same section as is pointed out by our figures below. A preliminary breakdown of items included in the cost estimates are contained in the Appendix.

Alternative	Shoreside	Bayside	Total
A. Reconstruct entire pier	$1,116,000	$2,484,000	$3,600,000
B. Rebuild as necessary	$1,950,000	$1,050,000	$3,000,000

INTERPRETIVE PROSPECTUS

National Maritime Museum
Golden Gate National Recreation Area

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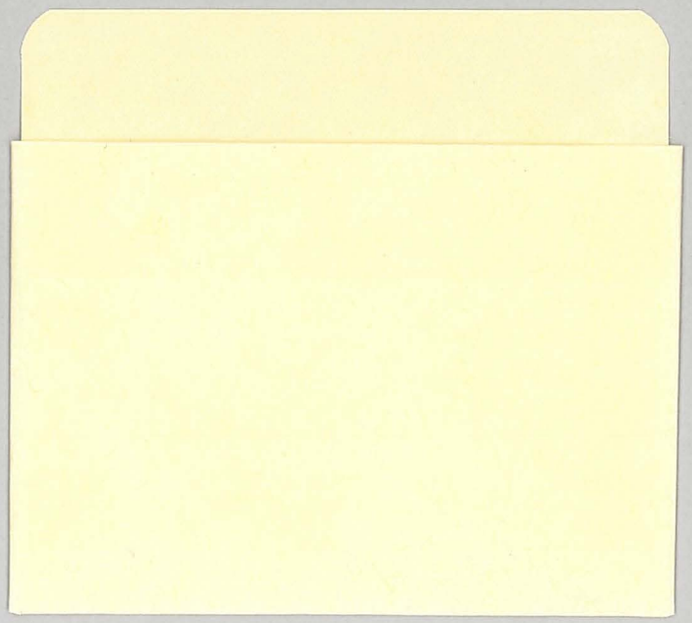
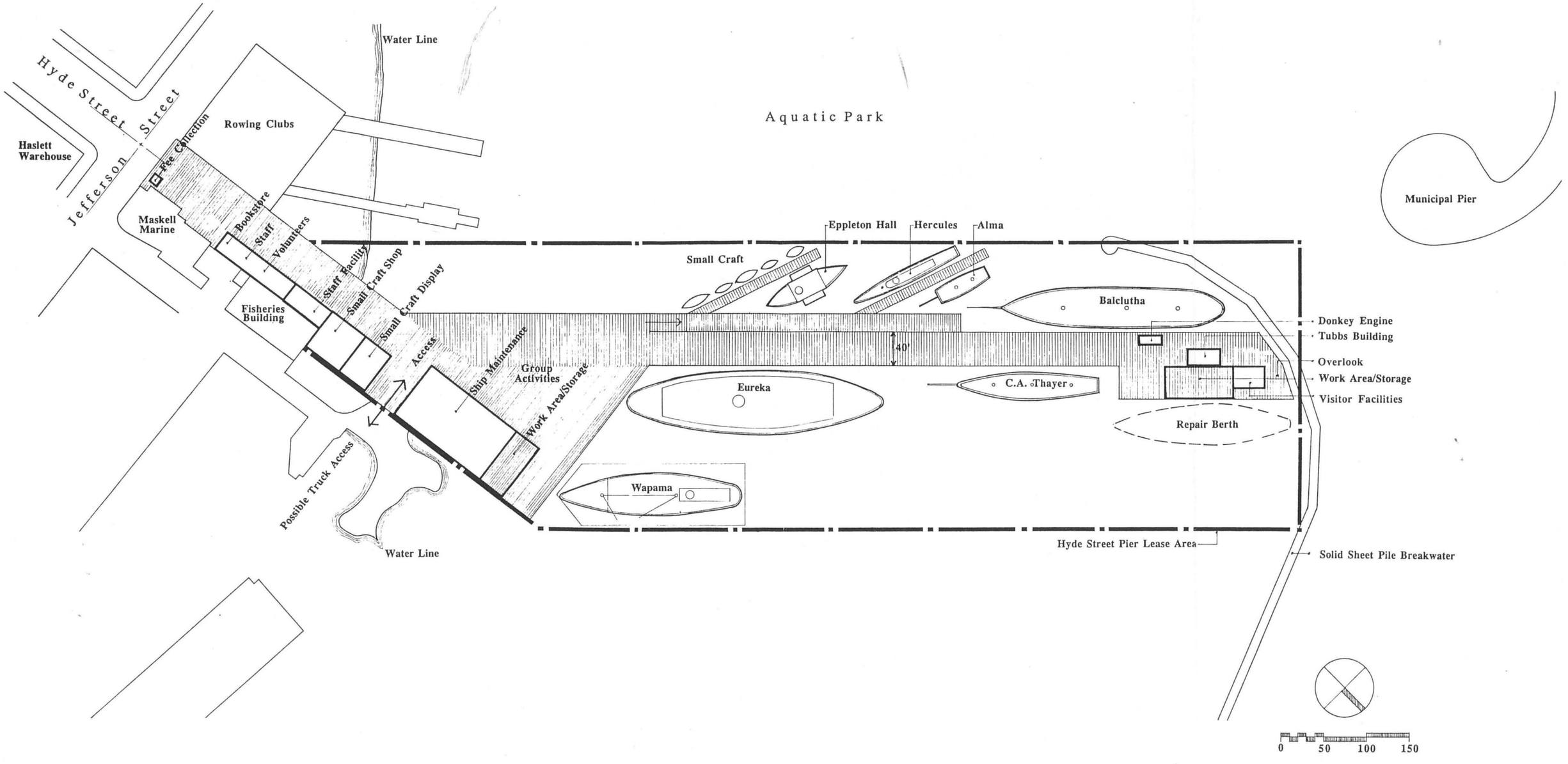
Photographs

Photographs for this report were provided by the National Maritime Museum, Golden Gate National Recreation Area, National Park Service, San Francisco, CA.

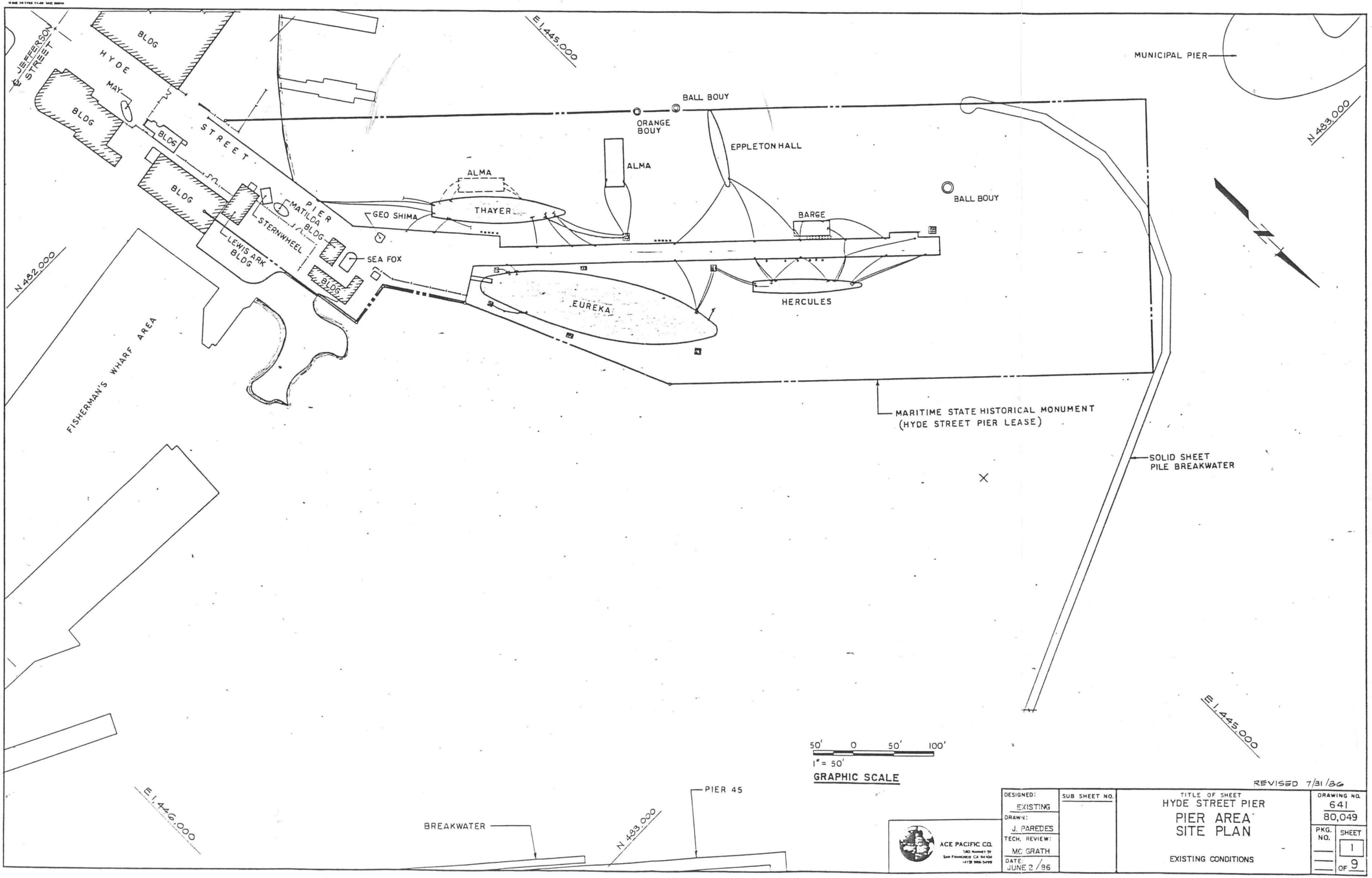




National Maritime Museum
Golden Gate National Recreation Area
San Francisco, California

HYDE STREET PIER CONCEPT PLAN

Architectural Resources Group
Pier 9, The Embarcadero
San Francisco, California 94111



REVISED 7/31/86

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DESIGNED: EXISTING	SUB SHEET NO.	TITLE OF SHEET: HYDE STREET PIER PIER AREA SITE PLAN EXISTING CONDITIONS	DRAWING NO. 641 80,049
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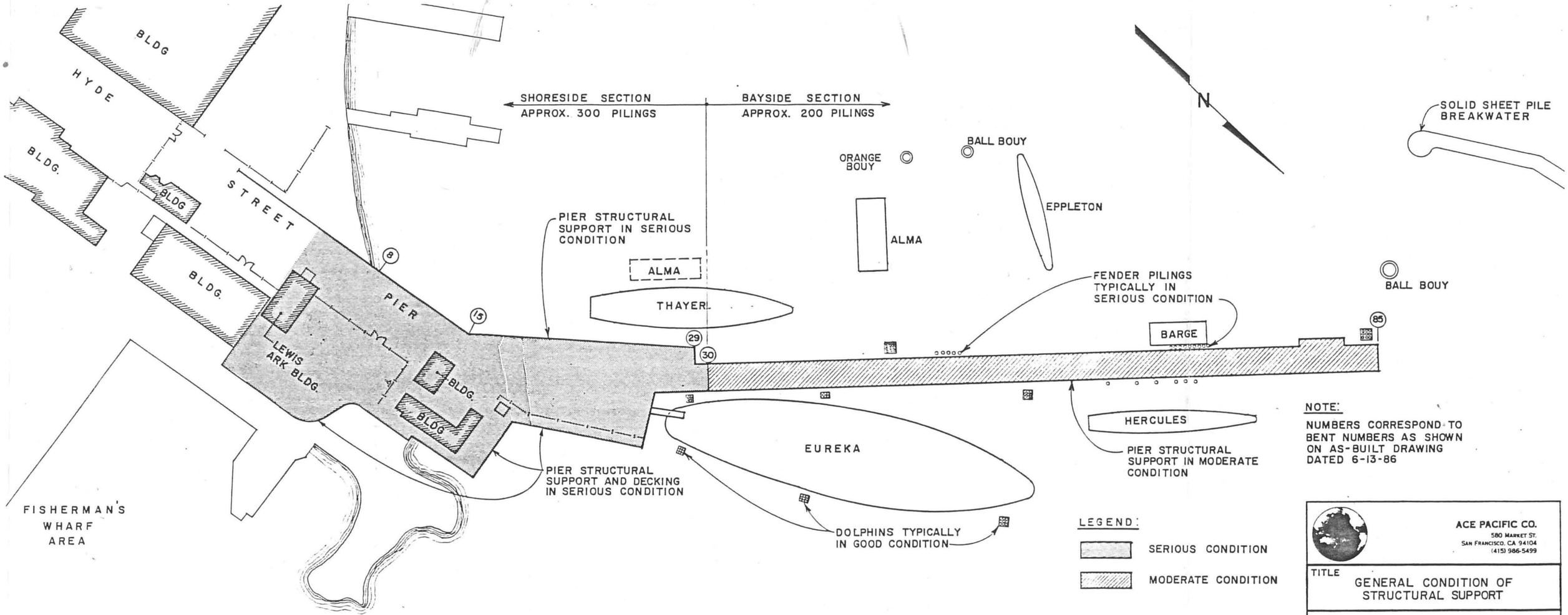
TECH. REVIEW: MC GRATH			SHEET 1 OF 9
DATE: JUNE 2/86			



NOTE:
NUMBERS CORRESPOND TO BENT NUMBERS AS SHOWN ON AS-BUILT DRAWING DATED 6-13-86

LEGEND:

- SERIOUS CONDITION
- MODERATE CONDITION

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TITLE
GENERAL CONDITION OF STRUCTURAL SUPPORT

HYDE STREET PIER MARITIME MUSEUM

DESIGN	SCALE	SHEET
ED BENNETT	---	1 of 1